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Research Article

NEW APPLIANCE FOR ANTERIOR CROSS-BITE CORRECTION

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ABSTRACT

Cross-bites are deviations from ideal occlusion in the transverse plane of space in the posterior and/or in the sagittal plane of space in the anterior¹. Anterior-cross bite is a malocclusion arising due to lingual position of maxillary incisors in relation to the mandibular incisors². Anterior crossbite is a major concern in both esthetic and functional during the developmental stage of a child. It is one of the major responsibilities of the orthodontist & pediatric dentist to guide the developing dentition to a state of normalcy in line with the stage of oral-facial growth and development. The period of mixed dentition offers the greatest opportunity for occlusal guidance and interception of malocclusion which depends on the appliance design many traditional appliances for correction of anterior cross bite like Z spring, Catalans appliance...etc, but in children acceptance is a challenge and hence a spark for a new appliance design which is more effective & fixed so it can deliver light continuous force for effective correction in a short duration of span because, if delayed to a later stage of maturity, treatment may become more complicated. This new appliance is simple and easy to construct. Also the patient comfort is at maximum without impeding the speech. This appliance is required to be in place only for 4 weeks compared which is way shorter than the rest of the appliances.

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INTRODUCTION

Cross-bites are deviations from ideal occlusion in the transverse plane of space in the posterior and/or in the sagittal plane of space in the anterior^[1]. Anterior-cross bite is a malocclusion arising due to lingual position of maxillary incisors in relation to the mandibular incisors^[2]. Anterior crossbite is a major concern in both esthetic and functional during the developmental stage of a child. Anterior crossbites in the early mixed dentition are believed to be transferred from the primary to the permanent dentition and can have long-term effects on the growth and development of the teeth and jaws^[3]. Anterior cross bite may often lead to abnormal enamel abrasion and proclination of the mandibular incisors, which, in turn, leads to thinning of the labial alveolar plate and/or gingival

recession^[4]. Mandibular shift caused by abnormal mandibular movements may place strain on the oro-facial structures, causing adverse effects on the temporomandibular joints and masticatory system^[5]. It is one of the major responsibilities of the orthodontist & pediatric dentist to guide the developing dentition to a state of normalcy in line with the stage of oral-facial growth and development. The period of mixed dentition offers the greatest opportunity for occlusal guidance and interception of malocclusion which depends on the appliance design many traditional appliances for correction of anterior cross bite like Z spring, Catalans appliance ...etc, but in children acceptance is a challenge and hence a spark for a new appliance design which is more effective & fixed so it can deliver light continuous force for effective correction in a short

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duration of span because, if delayed to a later stage of maturity, treatment may become more complicated.

Appliance Design

Appliance design includes posterior bite blocks^[6,7] on maxillary arch joined by Coffin spring^[4] (1.25mm).0.014 HANT wire is incorporated into bite block.0.014 HANT wire works on cantilever principle^[4] (one end fixed in the acrylic and other end brings about tooth movement). Coffin spring was incorporated to counteract the reactionary forces delivered by the HANT wire (fig 1).

Advantages

1. Applies light continuous forces
2. Minimal acrylic coverage on palate increases patients compliance
3. Less speech interference when compared to z spring with full acrylic coverage
4. Frequent activations are not recommended
5. Appliance is in self cleansing area, Oral hygiene maintenance is easy
6. This appliance is recommended in patients who have gag reflex to acrylic.
7. Since it is a fixed appliance, patient co operation is least required
8. Treatment results can be achieved in lesser time (40 days) compared to other cross bite correctors.
9. Preserving labial enamel from bonding with brackets at an early age

CONCLUSION

This new appliance is simple and easy to construct. Also the patient comfort is at maximum without impeding the speech. This appliance is required to be in place only for 4 weeks compared which is way shorter than the rest of the appliances (Fig.2).

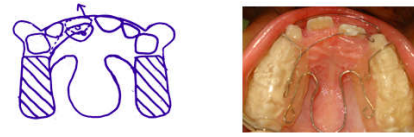


Fig.1 - Prototype of new appliance for anterior cross-bite correction.



Fig.2 - The new appliance in place for correction of Anterior - Cross bite in Early Mixed dentition.

Reference

1. Daskaligiannakis J. Glossary of orthodontic terms, Editor:Frans Vander Linden PGM, Quintessence Publishing co. inc Germany;2000.
2. Tsai HH. Components of anterior crossbite in the primary dentition. *J Dent Child* 2001;68:27-32.
3. McNamara JA Jr. Early intervention in the transverse dimension: is it worth the effort? *Am J Orthod Dentofacial Orthop* 2002;121(6):572-74.
4. Valentine F, Howitt JW. Implications of early anterior crossbite correction. *ASDC J Dent Child* 1970;37(5):420-27.
5. Ingervall B, Thilander B. Activity of temporal and masseter muscles in children with a lateral forced bite. *Angle Orthod* 1975;45(4):249-58.
6. Adams CP. Removable appliances yesterday and today. *Am J Orthod* 1969;55(6):755-56.
7. Isaacson KG, Muir JD, Reed RT. Removable orthodontic appliances. Publisher: Wright, Oxford, UK, 2002;Pg-19.

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